



Benin ICT Sector Performance Review 2009/2010

Augustin Chabossou

*Towards Evidence-based ICT Policy and Regulation
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BENIN

Research ICT Africa

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About the Author

Augustin Chabossou is a researcher at "Centre d'Etudes, de Formation et de Recherches en Développement" (CEFRED) (Centre of Development Studies, Training and Research), Université d'Abomey-Calavi (UAC) and the activity coordinator of the "ICT and economic development" department. He is a lecturer at the Université d'Abomey-Calavi's Faculty of Economic and Management Sciences. He also teaches at the Université de Parakou and the Université Catholique de l'Afrique de l'Ouest (UCAO) in Abidjan.

He holds a Masters degree in Industrial Economy, specializing in Public Economy, as well as a PhD from the Université de Cocody, Abidjan.

He ran the "ICT Support Centre for Training and Research" from 2001 to 2004. He currently coordinates the research programme "E-stratégie du Bénin" as well as the activities of the Research ICT Africa network in Benin. He has carried out various studies on telecommunication regulation as well as on access to and the use of ICT services.

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General Introduction

The Republic of Benin is a small country with a surface area of 114,763 km², located in Western Africa in the tropical area between the Equator and the tropic of Cancer. To the south it is bordered by the Atlantic Ocean and to the north by the Niger River (which separates it from the Republic of Nigeria). To the northwest it is bordered by Burkina Faso, to the west by Togo and to the east by Nigeria.

The official capital of Benin is Porto-Novo. However, due to its geographical position, the city of Cotonou remains the centre of economic activity and the headquarters for most institutions in the Republic. In the last general population and housing census in 1992, Benin had a population of 6,769,914 inhabitants, of which 3,485,795 (or about 51,5%) are women. Benin is divided into twelve departments and 77 communes, three of which (Cotonou, Porto-Novo and Parakou) have special status.

Benin is a member of the West African Economic and Monetary Union (UEMOA) and its monetary policy is pursued regionally by the regional Central Bank, the BCEAO. Benin is also a member of the Economic Community of West African States (ECOWAS).

For a few years now, the government of Benin has been implementing a development programme with the objective of strengthening the macro-economic framework of the country in the mid-term. Steps were thus taken to improve the macro-economic environment through the implementation of structural reforms.

The analysis of macro-economic indicators (table 1) shows that on the whole the macro-economic and social situation in Benin improved over the past few years. Nevertheless, growth remains weak and does not allow for a significant reduction of poverty. In addition, the economy remains highly dependent on the activities of the cotton sub-sector and foreign trade, notably with their larger neighbour, Nigeria. The problem of diversifying the economy still constitutes a major constraint in reaching strong growth, which is less vulnerable to exogenous blows. Delays in the implementation of important structural measures by the government (notably the privatization of public companies and certain reforms relating to the Cotonou harbour) have largely contributed to the underachievement observed in the country. The Government undertook to carry out essential reforms over the years to come.

Table 1: Macro-economic indicators in Benin.

	2007	2008	2009
GDP (thousand millions)	5,4	6,6	7,16
GDP per capita (1000 FCFA)	273,1	362	ND
HDI	0,492	0,484	0,493
Real growth rate	4,6	5	ND
Inflation rate	3,8	1,3	ND
Trade balance	-34,9	-30,0	ND
Transport and Communication (in thousand millions)	56,9	60,7	ND
FDI (million FCFA)	48	46,3	43,8

Source: INSAE, UNDP 2009.

In spite of the food and energy crisis, Benin has made notable progress in GDP. On a macro-economic level, this progress is translated by real growth in gross domestic product (GDP) of close to 4%, inflation control, and a bearable budget deficit.

The upward tendency of the GDP in these past few years is mainly linked to the implementation of economic reforms, notably the reorganization of public finances and the progressive settling of State debt to the private sector, to the dynamism of infrastructure works and to ICT.

Benin thus has significant assets to accelerate its growth and to reduce poverty by 50% by 2015. These assets can predominantly be found in its agricultural capacity and the promotion of services linked to its traffic service position in the sub-region.

Even though it possesses undeniable assets (growing GDP, declining corruption, stable political situation, favourable geographic location), Benin remains a country where poverty is significant and which necessitates structural reforms to make the business climate more competitive and conducive to growth

Measures will need to be taken whose combined effects will have a positive impact on competitiveness and economic growth, thus contributing to growth and the reduction of poverty.

As for governance, Benin is characterized by remarkable political stability and progress in the deep-rootedness of democracy.

According to international criteria such as the "Doing Business" indicators or the "Global Competitiveness Index", Benin was classified among the bottom 20 countries in 2007. Indeed, its business environment and governance remain a real challenge since, according to "Doing Business", the country has dropped 12 places in one year, going down from 157th in 2008 to 169th in 2009¹. In Benin, it takes 410 days on an average to obtain licences and permits from administrative authorities, while it takes only 271 days in sub-Saharan Africa. This substantially increases business costs in Benin and seems to indicate an increase in corruption. It takes four years, considerably more than the average of 3.4 years in sub-Saharan Africa, to settle the balance of accounts in the case of closing down a company in Benin. In this regard too, Benin moved down 21 places in 2009 from 2008².

In addition, concerning the perception of corruption in Africa, the organization Transparency International classified Benin 96th out of 180 countries in 2008 with an index of 3.1, a great improvement compared to 2007 (118th out of 179 countries and an index of 2.7).

Benin established itself progressively in the re-exportation economy since 41.2% of its main exports in 2006 consisted of re-exports. This strengthens the share of services in the GDP of the country (48.4%) while agriculture, though still relatively significant (37.1% of GDP), only increased very slowly in productivity.

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¹ IFC, Doing Business 2009, <http://www.doingbusiness.org/ExploreEconomies/?economyid=22>

² Ibid, "Closing a business"

ICT Policies in Benin: Vision, Pillars and Strategic Axes

On 31 December 2008, Benin adopted a new text; the Sector Policy Statement (SPS) for posts, telecommunications and ICT. The SPS consists of a vision, pillars and strategic axes.

The ICT Policy Vision

Since the advent of the new political regime in Benin following the 2006 presidential elections, Benin's vision relating to telecommunications and ICT underwent development. This new vision was first mentioned in the document drawn up in 2007 entitled "Feuille de route du secteur des telecommunications et des TIC" (Movement Order of the Telecommunications and ICT Sector), and was then adopted in December 2008. The Beninese State wants "to make Benin the digital district of Africa". This involves attracting Foreign Direct Investments (FDI) to the telecommunications and ICT sector (outsourcing services, creation of new booming clusters) and to develop the ICT industry and services (particularly amongst SME) to create an environment that promotes competitiveness in the Beninese economy in general and the ICT sector in particular.

The fulfilment of the vision takes place through the implementation of the SPS pillars.

The Pillars of the National Telecommunications and ICT Policy

In order to translate the SPS vision into reality, it is supported by two essential pillars. They are e-government and e-business.

The **e-government** is tasked with increasing the efficiency of administration by reducing communication costs and by placing well-trained officials in modern working conditions. It is at this level that the State intends to fully play its role as ICT user. This pillar is divided into two parts: e-administration and e-governance.

The goals of e-administration are:

- to give Benin a modern, competitive, connected and interconnected public sector ;
- to increase the efficiency, reliability, speed and security of administration by reducing communication costs and by placing well-trained officials in modern working conditions ; and
- to roll out a governmental intranet infrastructure in order to reduce the possibilities of errors, incoherence and delays in the processing of administrative files.

E-governance applies to all State institutions. Thanks to ICT, through e-governance:

- administration will be at the service of citizens ;
- public service will be of high quality ;
- there will be transparency and good governance ;
- legislation will be adapted to electronic, administrative and secure transactions ;
- public finances will be improved ;
- individuals will have easy access to civil status services at a minimal fee and can participate in transparent electoral processes and will benefit from remote public services.

E-business is the pillar dealing with the promotion of a competitive private sector, which has become the motor of growth and is geared towards the use of value added services based on ICT.

This pillar will allow the State to carry out its role of facilitator and manager. It entails that the State will ensure stable and secure regulation in order to promote an attractive environment for ICT business, allowing the sector to produce multiple effects in all the other sectors of the Beninese economy. The interrelations between the companies in the ICT subsidiary (operators, Internet access providers, value added service providers, ICT exports, ICT training structures, etc.) will increase the level of competitiveness in the sector as well as the national economy.

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The purpose of the e-government is to increase the efficiency of administration by reducing communication costs and by placing well-trained officials in modern working conditions.

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The Strategic Axes

To fulfil the vision through the two pillars, Benin's strategy rests on five axes. They are:

- the legal and institutional framework ;
- infrastructure ;
- human resources ;
- the development of content, which is adapted to the needs of the country in all sectors ; and
- competitiveness

To make these strategies operational, the government has adopted key actions for each pillar in each of the axes used.

In the field of e-government, a series of texts (on electronic signatures, cryptology, protection of citizens' private lives, and cybercrime) will be adopted in view of bridging the legal gap and to propel Benin into the information society. These texts will allow Benin:

- to seize the opportunities that ICT offers ;
- to carry out digital processing, thereby using less paper ;
- to ensure universal service to the most disadvantaged areas. To that purpose, the Fond de Développement Universel des ICT (FDUTIC) (The ICT Universal Development Fund) will be strengthened through the contributions of telecommunication operators in accordance with universal service, possible State subsidies or any other bequests.

The implementation of the governmental intranet will require a high-speed connection between the different State structures and even within each structure and its possible divisions. Infrastructure will also involve transport, data storage and processing as well as network and data security.

In addition, with the goal of strengthening the abilities and know-how of administration officials and of ensuring knowledge management in ICT, the government will encourage the creation of centres of excellence and training in telecommunication and ICT in relation to any touchstone institutions on international level.

Once the infrastructure has been put into place, the government will roll out applications that will render the use of ICT in administration effective. It will involve the generalization of collaborative work tools, automation of administration business processes and information systems. The creation of a resource centre for technical support and the development of adopted software will be one of the priorities.

In the field of e-business, institutional reforms will be carried out with the goal of reorganizing the sector, making it more transparent and predictable for State operators and for consumers by:

- Drawing up a code of electronic communication and post, which aims to organize and revitalize the sector. It will define a legal framework allowing, among others, to better integrate the technological innovations that characterize the sector.
- Creating a new Electronic Communication and Posts Regulation Authority, which is independent and autonomous in respect of the ECOWAS guidelines as a replacement for the transitional Authority.
- Implementing a system of promoting companies that bring growth and which are oriented towards exportation.
- Reorganization of the AGeNTIC (the Agency for the Management of New Information and Communication Technologies) of which the board of directors will consist of State and private sector representatives and which will promote companies within the sector while ensuring that project management is delegated.

The State will see to it that a quality network be rolled out on national level to reduce the digital divide between the department of Littoral (Cotonou) and the rest of the country. The telecommunication infrastructures (in particular SAT-3 fibre optic, which is interconnected with neighbouring countries) will allow Benin to draw advantage from its position of transit country. In addition, the State will ensure that the infrastructures implemented by Bénin-Télécom SA and private operators are state-of-the-art infrastructures so that service-exporting companies (Teleservice) can offer system provision on international standards.

To have qualified human resources, the condition sine qua non for the fulfilment of the State strategic vision, it will be necessary to act along three axes:

- To promote the creation of engineer training subsidiaries of which the profile corresponds to convergence trades (voice, data, sound and video) in order to create a critical mass of ICT specialists capable of drawing direct investments to Benin.
- To promote professional certification in the profession such as network configuration and administration, the design and administration of data bases and the mastery of development tools in order to offer internationally recognized qualifications on the market. To this purpose, the creation of recognized test centres will be encouraged so that the Beninese will not have to go to other countries in order to take their exams.
- To promote training in emerging occupations. The availability of these qualifications will make Benin more attractive as it will avoid companies investing time and significant amounts on on-the-job training before establishing themselves. Finally, mass programmes will be encouraged in order to enlarge the national ICT service consumption volume.

To reduce the country's strong dependence on imported ICT products, the local solution development incentive will be strong. Thus, the Beninese State will encourage the local development of software with content adapted to the needs of companies using value added services in the Beninese and sub-regional markets. The search for technical partners who are able to carry out the transfer to the Beninese will continue. The development of applications for mobile telephones will be promoted, as this will contribute to the amelioration of the digital divide due to the high penetration rate of this medium to the population. The different sectors of the economic and social life of Benin (finances, education, health, commerce, tourism, agriculture) and the local authorities will design ICT applications responding to their concerns.

Finally, to make Beninese value added exports and job creation companies competitive, the State will create a business park or cyber-city, supplied with a high speed connection and support services inherent to this type of structure. The investments code will be readjusted so that Beninese companies will be placed under the same conditions as their competitors in other countries. It will translate to an investment attraction policy and encourage delocalization of multinationals in Benin (services, industries). The regulation authority will see to it that the rates charged are as competitive as those offered in the other countries of the sub-region.

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Telecoms, Internet and Broadcasting Regulation Policy in Benin

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The telecommunication and ICT sector in Benin is characterized by its lack of a legal framework and adequate and uniform regulation, this despite the existence of regulatory authorities (ATRPT and HACA). The Autorité Transitoire de Régulation des Postes et des Télécommunications (ATRPT) takes care of the regulation of telecommunication and the Internet, while the High Authority for Audiovisual Communication (HAAC) takes care of the regulation of radio and television broadcasting. Nevertheless, strategies are implemented to grant the country a code of electronic communication and posts in the Republic of Benin organized in three parts: electronic communication, post, and the regulation authority.

The Telecommunications and Internet Regulation Policy

Formerly, the Ministry in Charge of Communication was the authority of administration and policy supervision in the sector. Its main tasks were to define the telecommunication sectoral policy, to provide the rules, regulations and the control of the sector, and to manage the allocation of frequencies and licences as well as the choice of technological standards. But following the legislative and institutional changes that took place in the sector, the supervisory Ministry is henceforth in charge of no more than defining the sectoral policy and representing the interests of Benin to the exterior, notably to regional and international organisms. The regulatory role which it was allocated in the past is reserved for an independent entity; in other words the regulation authority.

The Executive Secretary is the authority in charge of the preparation and the implementation of the decisions of the Transitional Regulatory Board, which is the deliberative organ and the decision-making authority of the ATRPT. The functions of the Transitional Regulatory Board are:

- to define the operating rules of the ATRPT ;
- to approve the regulation of competitive bidding for the granting of licence approval ;
- to decide on the issuing of licences and approval ;
- to decide on sanctions in the case of shortcomings experienced in the legislative clauses, regulations or the content of licences and approval ;
- to give decisions on the disagreements, which it is subject to by the Executive Secretary ;
- to adopt the pricing principles or payment and provision rates of the Authority in accordance with the laws and regulations in force ;
- to define the interconnection policy as well as pricing principles and to authorize the fair and reasonable pricing of posts and telecommunications ;
- to define the general policy of the post ;
- to define the rules concerning the service rates of posts and telecommunication not subject to competition ;
- to define the technical prescriptions applicable to the telecommunication network and terminal equipment in view of guaranteeing their interoperability, number portability and the proper use of radio electric frequencies and telephone numbers ; and
- to define the general ICT sector policy.

The ATRPT is also in charge of regulating activities related to Internet access provision.

Radio and Television Broadcasting Regulation Policy

The period preceding the advent of the democratic revival was characterized by significant gaps in freedom of expression. To stamp out these problems, the legislator has instituted a High Authority for Audiovisual Communication (HAAC) by articles 24, 142 and 143 of the Constitution of 11 December 1990. The HAAC is in charge of ensuring that the freedoms defined by said Constitution are respected. Organic Law no. 92-021 of 21 August 1992 defines the organization and the functioning of the High Authority for Audiovisual Communication (HAAC). The HAAC is independent of any political authority, any political party, association or pressure group of any nature whatsoever. Its task is:

- to ensure the freedom and protection of the press as well as all the means of mass communication in respect of the law ;
- to see to the respect of ethics in information matters and fair access of political parties, associations and citizens to official means of information and communication ; and
- to guarantee the fair and appropriate use of public press and audiovisual communication organs by the institutions of the Republic, each according to its constitutional tasks and to ensure the necessary arbitrations if need be.

The HAAC, in its position of guaranteeing the exercise of freedom of press and communication, ensures equal treatment between all operators in press and communication matters. It sees to the maintenance of the national cultural identity through the appropriate control of the opening of communication networks and ensuring free competition. It encourages creativity in the field of the press and communication and guarantees the conditions of support of the State to the public and private press. In addition, the HAAC is responsible for the use and allocation of frequencies devoted to radio and television broadcasting.

Regulation Difficulties in the ICT Sector

Operators suffer from a lack of effective operational regulation (interconnection, frequency management, management of disagreements). In the field of telephony, the allocation of radio electric frequencies is within the province of the Ministry in Charge of Telecommunication. The control of its frequencies, once allocated, it is ensured by the Regulation Authority. The frequencies devoted to radio and television broadcasting are allocated by the HAAC. And yet, these frequencies are the same. In Benin, there is currently no reliable frequency distribution table.

Analysis of the Development of Telecommunication, Internet and Broadcasting Markets

The telecommunication and ICT sector in Benin is marked by the presence of the following role players:

- one fixed-line network operator (Bénin-Télécoms SA). It is a public operator. This company is currently being privatized. For the moment no decision has yet been made on the future market structure.
- five GSM operators, of which four are private and one belongs to Bénin-Télécoms SA, the incumbent operator. Modifications to this market structure are not foreseen in the near future.
- internet access providers (IAP)
- various radio and television channels

Despite the law on the liberalization of the telecommunication sector, the fixed line telephone market remains a public monopoly, the only service provider being Bénin-Télécoms SA. However, in spite of its monopoly and the economic investments made by the country, the public company Bénin-Télécoms SA does not manage to properly extend its network across the national territory.

Table 2: Evolution in the number of fixed-line subscribers per department.

Departments	Years							
	2001	2002	2003	2004	2005	2006	2007	2008
ALIBORI	610	677	761	790	905	866	886	951
ATACORA	846	927	989	1.124	1.235	1.214	1.224	1.100
ATLANTIQUE	4.181	4.596	4.868	6.388	7.290	7.597	7.109	7.021
BORGOU	2.329	2.468	2.783	3.206	3.392	3.349	3.291	3.127
COLLINES	976	1.082	1.266	1.505	1.297	1.659	1.721	1.291
COUFFO	186	204	237	202	434	451	452	387
DONGA	613	706	707	724	695	640	649	651
LITTORAL	31.746	32.273	34.257	36.593	38.123	38.559	38.271	34.720
MONO	1.256	1.441	1.682	1.862	1.939	1.884	1.963	1.533
OUEME	6.611	6.602	7.193	8.232	8.785	9.083	9.445	10.330
PLATEAU	914	967	994	1.250	1.294	1.320	1.323	1.483
ZOU	2.717	2.866	3.110	3.643	3.650	3.625	3.468	3.715
TOTAL NUMBER	59.298	62.669	66.511	72.789	76.267	77.342	110.254	131.286
EVOLUTION (%)	---	5,68	6,13	9,44	4,78	1,41	42,55	19,08
TELEDENSITY	0,92	0,93	0,96	1,01	1,03	1,04	1,37	1,63

Source: Compiled from data from Bénin-Télécoms SA

An oligopoly is a market structure in which a limited number of companies offer their goods or services to all consumers. The Beninese mobile telephone market, which has five competing operators (Libercom, Moov, MTN, Bell Bénin and Glo Mobile Bénin), is an oligopolistic market.

It has to be noted that in the beginning, only the incumbent operator (Bénin-Télécoms SA) intervened in this market (through Libercom) before being joined in 2000 by two other operators (Moov and MTN), which are multinational companies. The fourth operator, Bell Bénin, entered the market in December 2003. Following the suspension of private networks (Moov, MTN and Bell Bénin) in view of the renegotiation of their licences in 2007, the State of Benin allocated a fifth licence to the operator Glo Mobile Bénin, which arrived on the market in 2008. The table below presents the distribution of the number of mobile telephone subscribers from 2003 to 2009.

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Table 3: Evolution and distribution of the total number of mobile telephones per operator.

GSM Operators	Years						
	2003	2004	2005	2006	2007	2008	2009
MTN	139.216	155.000	225.000	450.000	790.097	1.182.014	1.578.786
MOOV	108.766	135.993	175.000	272.106	693.941	978.470	1.357.838
BELL BENIN	7.000	25.000	45.000	172.000	371.576	709.987	849.359
GLO MOBILE	0	0	0	0	0	564.052	1.097.958
LIBERCOM	68.407	73.870	75.000	84.279	196.163	190.843	149.408
TOTAL	323.389	389.863	520.000	978.385	2.051.777	3.625.366	5.033.349
EVOLUTION (%)	58,33	20,55	33,38	88,15	109,71	76,69	38,84

Source: Survey data.

It emerges from this table that GSM mobile telephony experienced very significant development in Benin. Indeed, with a total number of users estimated at 323,398 in 2003, the number of GSM mobile subscribers increased to 5,003,349 in 2009 (a rise of 1456%).

In the Internet market, there are only eight Internet access providers to respond to all market demands. They are Bénin Télécom SA, Isocel Télécom, Connecteo Bénin, Pharaon Services Plus, Communitec, OTI, Firsnet and Campus Numérique Francophone (only for the university community). The service offering appears in form of a pyramid. Bénin Télécom SA is found at the top, followed by the Internet Access Providers. Finally, the bottom of this pyramid is made up of Internet cafés.

Certain GSM network operators, notably Moov, MTN and Global Com, offer an Internet connection to their customers and can increasingly be considered Internet access providers. The table below presents the total number of Mobile Internet subscribers in 2009.

Table 4: Total number of mobile Internet subscribers.

Operators	Number of Subscribers (September 2009)
MTN	105.875
Moov	22.121
Glo	4.341
Total	132.337

Source: ATRPT.

The situation of connecting Benin internationally consists of:

- nine specialised links of 64 kbps (cable),
- two specialised links of 128 kbps (cable),
- one specialised link of 1 mbps (cable),
- eight specialised links of 64 kbps (wireless),
- four specialised links of 128 kbps (wireless) and
- one specialised link of 256 kbps (wireless).

The advent of SAT3/WASC/SAFE fibre optic connections has helped strengthen infrastructure for international telecommunication, notable through the increase in the national bandwidth speed, which today is at 155 megabytes/second and via fibre optic connection between international telecommunication centres, the Republic of Togo, the Federal Republic of Nigeria and Burkina Faso. The same type of connection to Niger with an extension to Mali is underway. The two international transit centres are linked by fibre optic digital circuits.

The audiovisual market presents the same configuration as that of the Internet, with a few television channels that offer their services. Only the radio broadcasting and IT markets break this mould because of much higher numbers of suppliers in these two markets.

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The television services supply market consists of ten television channels of which seven broadcast conventionally and three broadcast in Microwave Multipoint Distribution System (MMDS).

Table 5: Distribution of television channels present on the market.

Nr	Channel Name	Town where Transmitter is Installed	Frequency Assigned (Mhz)
CONVENTIONAL BROADCASTING TELEVISION			
1	CANAL 3	Abomey-Calavi	642
2	GOLF TV	Cotonou	610
3	LC2	Cotonou / Parakou	658 / 554
4	IMALE AFRICA	Porto-Novo	850
5	CARREFOUR TELEVISION	Bohicon	842
6	ORTB/TV NATIONALE	Cotonou	
7	ORTB/TV REGIONALE	Parakou	
MICROWAVE MULTIPOINT DISTRIBUTION SYSTEM BROADCASTING TELEVISION			
8	TV-COM/CANAL +HORIZONS	Cotonou	2520/2536/2552/2568/2584/2600/2616
9	ATVS	Cotonou	2544/2560/2576/2592/2608/2696
10	TV+INTERNATIONAL	Cotonou	2512/2624/2640/2656/2672

Source: Survey data.

The radio broadcasting market is organized around seventy-one radio stations. Twenty-two, or 31%, of these stations are found in the three communes with special status (Cotonou, Porto-Novo and Parakou).

Contribution of ICT to the Beninese Economy

The telecommunication sector has multiplying effects directly on other sectors of the economy. Certain authors even go as far as establishing a positive correlation between the level of development of telecommunications of a country and its economic growth.

Hardy et al. (1980) maintain that telecommunications only have an impact on economic growth when the ICT penetration rate reaches 40 fixed telephone lines per 100 residents. We could, thus, consider that the same results would be possible in the mobile telephone sector, keeping in mind the increase in the penetration rate. Indeed, the telephone penetration rate increased to 61,16% in 2009 from 26,87% in 2007 (ATRPT, 2010).

Tcheng et al. (2009) examined the contribution of telecommunication to development in Africa. Indeed, the positive impact of telecommunication can be felt earlier without waiting for the country to be developed. In this way, ICT can contribute to the economic development of countries, in the same way as access to drinkable water, electricity or transport.

The consequences of technology can be seen directly through the thousands of jobs created and considerable receipts made and indirectly with the appearance of new goods and services that contribute to the maintenance of activities in other sectors.

The following table presents the direct contribution of the telephone (fixed-line and mobile) sector to job creation in Benin.

Table 6: Direct employment at telephone (fixed-line and mobile) operators.

	2006	2007	2008	2009
Fixed Operator	1 319	1 231	1 114	766
Mobile Operators	552	875	1 119	1 210
Total Jobs	1 871	2 106	2 233	1 976

Source: ATRPT (2010).

Contribution to the creation of direct employment is due more to GSM operators than the fixed-line operator. In fact, the fixed-line operator has seen the total number of its staff drop progressively since 2006, decreasing from 1,319 employees in 2006 to 766 employees in 2009. This drop in the total number can be explained, among others, by the freeze on recruitment of new employees due to the streamlining programme in progress, and to the preparation for the privatization of Bénin-Télécom SA. Apart from the direct jobs created, the ICT sector also generates numerous jobs indirectly. In fact, the prepaid card system requires a distribution network made up mostly of hawkers. But even more than job creation, ICT encourages the development of a real entrepreneurial spirit. Thus, roll out of ICT has allowed a large number of people to create their own companies by creating "telephone booths" and "internet cafés" on all the street corners, even in rural areas.

The following table presents the evolution of income generated by telecommunication companies over the 2006–2009 period.

Table 7: Annual turnover (in millions of FCFA).

	2006	2007	2008	2009
Fixed Operator	33.982	40.618	34.705	10.808
Mobile Operators	62.262	72.540	118.081	148.911
Aggregate Turnover	96.244	113.158	152.786	159.719

Source: ATRPT (2010).

Analysis of the table shows that the fixed-line telephone sector in Benin is declining. Indeed, despite all the recovery efforts undertaken since 2007, Bénin-Télécom SA, the only fixed-line operator, sees its turnover declining brutally over the 2007–2009, decreasing by almost three quarters. At the same time, the mobile telephone market presents significant growth in its receipts,

The telecommunication sector has multiplying effects directly on other sectors of the economy.

which offers evidence of the dynamism of this sector and its large contribution to the national economy. From 62 thousand million in 2006, the mobile telephone sector recorded receipts of just under 149 thousand million in December 2009. As for aggregate turnover in the telephone sectors in Benin, from 113,158 million FCFA in 2007, it increased to 159,719 million FCFA, rising 31.2%. This increase is notably due to the reforms in the mobile telephone sectors following the crisis observed in the sector in July 2007.

In developing countries and especially in Benin, keeping in mind the direct and indirect provision of ICT to their daily lives, users, notable mobile telephone users, devote a significant part of their budget to it. In fact, as the following table indicates, mobile telephone users dedicate on average a little more than 3,000 FCFA per month to the consumption of mobile telephone services. In March 2009, this consumption climbed to 3,998 FCFA.

Table 8: Average income per GSM subscriber in 2009 per operator.

Operators	March-09	June-09	Sept-09	Dec-09
MTN	4 994	4 311	4 615	5 609
MOOV	3 368	3 401	3 363	3 342
BBCOM	5 417	5 612	3 711	3 909
GLO	2 377	2 140	1 967	1 930
LIBERCOM	3 836	2 761	2 383	2 761
ARPU	3 998	3 645	3 208	3 510

Source: ATRPT (2010).

Investment in the telephone sector on 31 December reached 158.980 million FCFA compared to 87,998 million in 2007, a growth of 147%, which as a matter of course promotes the growth of diverse services and related jobs. The considerable investment volume in the mobile telephone sector in 2008 is due to the set-up of a fifth GSM operator (Glo Mobile Bénin).

Table 9: Evolution of annual investments (in millions of FCFA).

	2006	2007	2008	2009
Fixed Operator	1 854	3 358	4 150	362
Mobile Operators	21 483	84 640	208 716	158 618
Total Investment	23 337	87 998	212 866	158 980

Source: ATRPT (2010).

The positive impact of telecommunication was confirmed by econometric works. As was showed recently through a study in various emerging countries (Leonard Waverman et al.), a developing country which had an average of 10 supplementary points in terms of the mobile telephone penetration rate compared to another otherwise identical country, would have seen their GDP per capita increase by 0,59% between 1996 and 2003 in comparison. This result was confirmed in Benin by the work of Yai (2009) on ICT and economic growth since it has shown that the total number of telephones has a positive effect on the economic growth of Benin. Indeed, an increase in the telephone penetration rate of one percentage point impacts positively on economic growth by up to 13.75%. The same result was found by Van et al. (2008) on a micro-economic measure of the impact of telecommunication based on economic growth.

Mobile telephony has become a means of payment without close contact and plays a crucial role in remote transactions. For this purpose, new services, notably micro-payment or m-payment, have been developed in Benin banking companies (Diamond bank, BOA, etc.).

Pricing of Access to ICT Services

One of the essential reasons for the implementation of a regulatory institution for the telecommunications and ICT sectors is to ensure the provision of quality service to users at socially maintainable and relatively stable rates over time. In fact, the practice by operators of high access cost and usage rates could be at the root of the poor development of the sector and could constitute major obstacles in the appropriation process of telecommunications and ICT by households as well as companies in Benin.

The objective of this section is to analyse the composition and evolution of different telecommunication and ICT service rates.

Service Rates on the Fixed Line Network of Bénin Télécom SA

As regards the demand for telephone services on the fixed landline network, households and companies are faced with two types of rates:

- the network connection rate, which is the price all households or companies have to pay in order to belong to the club of fixed landline holders ; and
- usage rates paid for the duration of the different communications initiated.

On the Bénin-Télécom SA fixed landline network, the network connection rate is subdivided into two parts: the network connection fee and the monthly subscription charge. In Benin, for nearly 10 years, the network connection rate has not changed. It is 96,492 FCFA including taxes for residential subscribers (households and individuals) and 175,642 FCFA including taxes for business subscriptions (companies, administration). The monthly subscription charge, which represents the maintenance costs of the line by Bénin-Télécom SA, amount to 2,700 FCFA including taxes.

Table 10: Fixed-line network access rates.

Description	2007	2008	2009
Connection fee (FCFA incl. taxes)	96.492 / 175.642	96.492 / 175.642	96.492 / 175.642
Monthly subscription charge (FCFA incl taxes)	2 700	2 700	2 700

Source: ATRPT (2009).

On the wireless fixed-line network (AMPS and CDMA) of Bénin-Télécom SA, users are also expected to pay connection fees. For residential use of wireless fixed line networks, connection fees are set at 33,000 FCFA including taxes, compared to 40,000 FCFA including taxes for business users.

Table 11: Evolution of call rates on the fixed-line network.

	2007	2008	2009
National Communications			
Local communications/mn	20	20	20
Interurban communications/mn	60	60	60
Communication to mobiles/mn	120	120	120
International Communications (Peak hours/mn)			
UEMOA countries in FCFA excl taxes/mn	240	240	240
Other African countries	240	240	240
France, Italy	240	240	50/240
Other European countries	240/1200	240/1200	240/1200
United States/Canada	240	240	50/240
Other countries	240/1200	240/1200	240/1200

Source: ATRPT (2010).

One of the essential reasons for the implementation of a regulatory institution for the telecommunications and ICT sectors is to ensure the provision of quality service to users at socially maintainable and relatively stable rates over time.

Relatively stable (and even declining) and cheap whatever the call destination, connection rates on a fixed line are not prohibitive in Benin, despite the national monopoly. On the other hand, the connection flat rate consists of a high entry price for a majority of the population.

From the analysis of the previous table it emerges that the rate for a minute of local communication is 20 FCFA. The rates for a minute of interurban communication and to a mobile network are respectively set at 60 FCFA and 120 FCFA. We can also observe that the different national rates on the fixed-line network of Bénin-Télécom SA have not changed over the 2007–2009 period. Furthermore, it has put an end to the principle of hourly load factor on the fixed landline network in Benin.

For international communication, countries are classified into two groups. The first group is made up of African countries, France, Italy, the United States, Canada and certain European and Asian countries. The second group is made up of other states not included in the first group. On the basis of this classification, two rates are applied to international communication. For a minute of communication to a country in the first group, the user must pay the amount of 240 FCFA. However, users pay the high amount of 1,200 FCFA for a minute of communication to the states in the second group. For certain countries of the first group (France, Italy, the United States, and Canada), the use of the prepaid card Télé Plus allows users to pay the amount of 50 FCFA only per call minute.

Relatively stable and cheap whatever the call destination, connection rates on a fixed line are not prohibitive in Benin, despite the national monopoly. On the other hand, the connection flat rate consists of a high entry price for a majority of the population.

Service Prices on the GSM Mobile Telephone Network

During 2009, communication rates on the mobile telephone network have experienced a general decline

During 2009, communication rates on the mobile telephone network have experienced a general decline. In fact, the average rate (per minute) of intra-network communication (on net) went down from 66 FCFA in December 2008 to 59 FCFA in December 2009. At the same time, the average communication rates to other networks (off-net rates) decreased from 148 FCFA per minute to 124 FCFA.

Table 12: Evolution of call rates on mobile networks (in FCFA excluding taxes).

	2007	2008	2009
Intra-network communication	50/90	50/90	25/65
To local fixed lines	120/160	120/160	100/160
To other mobile networks	120/160	120/160	100/160
To UEMOA countries	135/240	125/240	100/185
To France	180/240	180/240	100/185
To the USA	180/240	180/240	100/185

Source: ATRPT (2010).

International call rates have also dropped over 2009. To remain competitive in the market, operators make an effort to always be in line with the low rates of their competitors.

SMS rates, after negotiation between operators under the supervision of the ATRPT, have also experienced a downward evolution

Table 13: Evolution of SMS rates.

	2007	2008	2009
SMS on net	20/25	20/25	15/25
SMS off net	50	50	50
SMS international	65/75	65/75	65/75

Source: ATRPT (2010).

Internet Service Prices

Free competition has led to a drop in the service usage rates at Internet cafés. For more than five years, the average connection rate per hour has been 300 FCFA. We find even lower rates in big cities (Cotonou, Porto-Novo and Parakou) in certain Internet cafés. However, these rates present investment profitability problems to Internet café owners.

Free competition has led to a drop in the service usage rates at Internet cafés.

As far as the wholesale market is concerned, since 2007, for reasons of the reorganization of the sector, all the licences granted to Internet access providers (IAPs) were suspended. Only two IAPs hold temporary licences. The operator Bénin-Télécom SA received a temporary licence for a trial to provide Wimax. The company Isotel Télécom obtained a similar licence for Internet provision via radio link from Broadband Wireless Access (BWA) technology. It involves a wireless Internet access solution. In addition, Bénin-Télécom SA is authorized to continue providing an ADSL connection. A dispensation exists, however, for other suspended IAP who use ADSL technology in sub-contracting with Bénin-Télécom SA.

The company Isocel Télécom offers two types of products. There are the prepaid connection ISONET for households and individual subscribers, and the post-paid connection ISOPRO for professionals. For an ISONET connection, the client must pay the initial amount of 99,000 FCFA including taxes for the connection. This includes the price of a connection kit and the antenna installation fees. For use, the subscriber has the option of choosing among three options. The "unlimited access" option costs 25,000 FCFA per month. "Evenings and Weekends" access at 15,000 FCFA is valid for 30 days, and a "50 Hours" option is available at 10,000 FCFA and is valid for 30 days. The ISOPRO option is a post-paid solution for companies and people who want a high speed shared or dedicated connection. Various subscription options are offered for which the monthly amounts vary between 35,000 FCFA for a 128 Kbps connection and 500,000 FCFA for a speed of 2048 Kbps.

The operator Bénin-Télécom SA offers a varied range of Internet access. The different products as well as the access fees and subscription costs are recorded in the following table:

Table 14: Access fees and monthly charges offered by Bénin Télécom SA.

Product Name	Speed (Kbps)	Access Fees (FCFA)	Monthly Charge (FCFA)
Kanakoo Liberté	115	50 000	Without monthly subscription Browsing at 400 FCFA per hour
Kanakoo Liberté plus	230	50 000	Without monthly subscription Browsing at 400 FCFA per hour
Kanakoo ADSL Family	256	55 000	25 000
Kanakoo ADSL IP Family	256	265 000	25 000
Kanakoo Wimax Family	256	220 000	25 000
Kanakoo Wimax Pro	1024	220 000	200 000
Kanakoo ADSL pro	1024	60 000	200 000
Kanakoo ADSL Pro	512	60 00	80 000
Kanakoo ADSL IP Pro	512	270 000	80 000

Source: Compiled from data from Bénin Télécoms SA.

Interconnection Costs

In Benin, interconnection fees are set after negotiation between the operators under the supervision of the Autorité Transitoire de Régulation des Postes et Télécommunications. Table 15 shows the interconnection fees between 2000 and 2009.

Table 15: Interconnection costs (in FCFA).

Interconnection Costs	2000	2005	2006	2008	2009
Call from Bénin Télécoms SA to a GSM	130	62	35	30	30
Call from GSM to Bénin Télécoms SA	30	55	35	30	30
Call from GSM to another GSM	130	--	25	30	30
Transit paid to Bénin Télécoms SA for a GSM call to another GSM	12	8	10	5	5

Source: Compiled from data from Bénin Télécoms SA.

Since 1 August 2008, the different costs of network crossing have not changed. Whatever the call type, the interconnection cost is 30 FCFA including taxes. For the transit of a call made by a GSM network user to a user on another network via Bénin-Télécom SA, the operator of the transmitting user must pay the amount of 5 FCFA including taxes to Bénin-Télécom SA in addition to the 30 FCFA including taxes to the other GSM operator. The interconnection rate for a local internetwork SMS is set by common agreement by the operators at 12.5 FCFA including taxes. In the case of an international transit entering into Benin via the Bénin-Télécom SA network and which terminates at a GSM operator, the latter pays an amount of 30 FCFA including tax for the cost of the Bénin-Télécom SA network crossing.

Analysis of the Perception of the Telecoms Regulatory Environment in Benin

Control of the regulatory environment is an important factor in the development of the telecommunication and ICT sectors and for a better determination of the level of investment throughout the country. The authorities of a developing country such as Benin, where the activities of telecommunication and ICT are in full development, and of which the regulation systems of telecommunication and certain other ICT activities, notably the Internet, have been under construction for three years, need to know the option of the main role players in this process. It is, thus, important to evaluate the telecommunication and ICT regulatory environment in Benin from the perceptions of the key role players.

The objective of this section is, thus, to evaluate the telecommunication regulatory environment (TRE) in Benin. This evaluation is based on the methodology developed for this purpose by Rohan Samarajiva and adopted by RIA. The current evaluation of the telecommunication regulatory environment (TRE) covers the period from June 2007 to August 2009 for the fixed-line, mobile and Internet telecommunication sectors. A TRE questionnaire was submitted to a sample of 50 people with a total return of 39 questionnaires. The respondents are grouped into the following three categories:

- **Category 1:** stakeholders directly affected by the regulation of the telecommunication sector, such as operators, professional associations linked to the sector, equipment providers and resellers. Sixteen individuals in this category took part in this survey.
- **Category 2:** stakeholders who analyse the sector with a larger interest, such as financial institutions, telecommunication consultants and law firms. Nine people from this category participated in the survey.
- **Category 3:** stakeholders who are interested in the improvement of the sector to help the public such as universities, research organisms, journalists, telecommunication user groups, civil societies, former member of regulatory organs and other governmental organisms and donors. Fourteen individuals belonging to this category responded to the questionnaire.

Each respondent gave a score on the basis of his knowledge of the sector and essential events that took place in the sector over the period from June 2007 to August 2009. The respondents were requested to give their degree of satisfaction on the quality of the regulatory environment for each aspect. The evaluation grill consists of five points: (1) very unsatisfied, (2) unsatisfied, (3) rather satisfied, (4) satisfied and (5) very satisfied. During the use of the results (available in the TRE notes), the original scale was transposed to another from (-2) to (2), maintaining the same intervals.

The questions are based on the evaluation of seven aspects:

- market entry conditions ;
- allocation of rare resources ;
- interconnection management ;
- regulation of anti-competitive practices ;
- respect of the universal service obligation ;
- price regulation ; and
- service quality

Graph 1 presents an overall view of the results of the telecommunication and regulatory environment (TRE) evaluation in Benin.

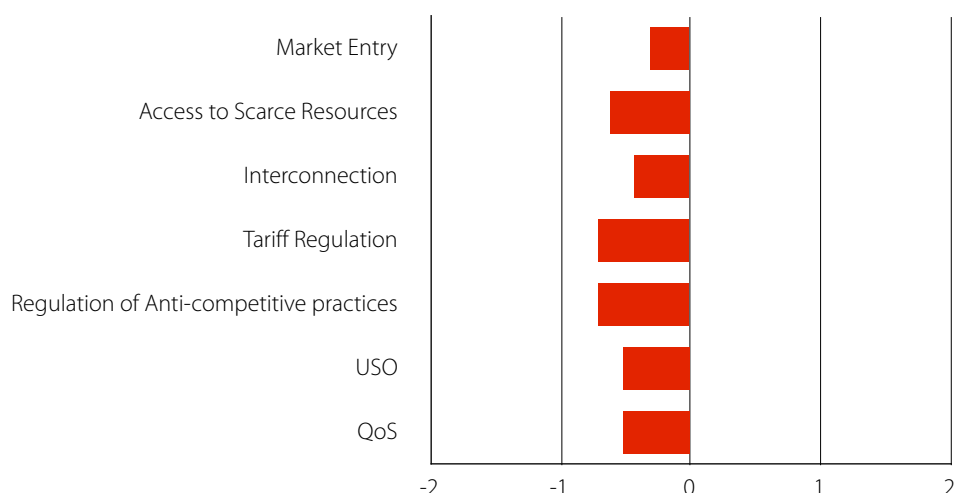


Figure 1: 2009 TRE Results in Benin.

Source: Survey results.

We can see that the role players do not globally perceive the regulation of telecommunication and ICT in a satisfactory manner.

We can see that the role players do not globally perceive the regulation of telecommunication and ICT in a satisfactory manner. On the score scale ranging from -2 to 2, Benin scored -0,545.

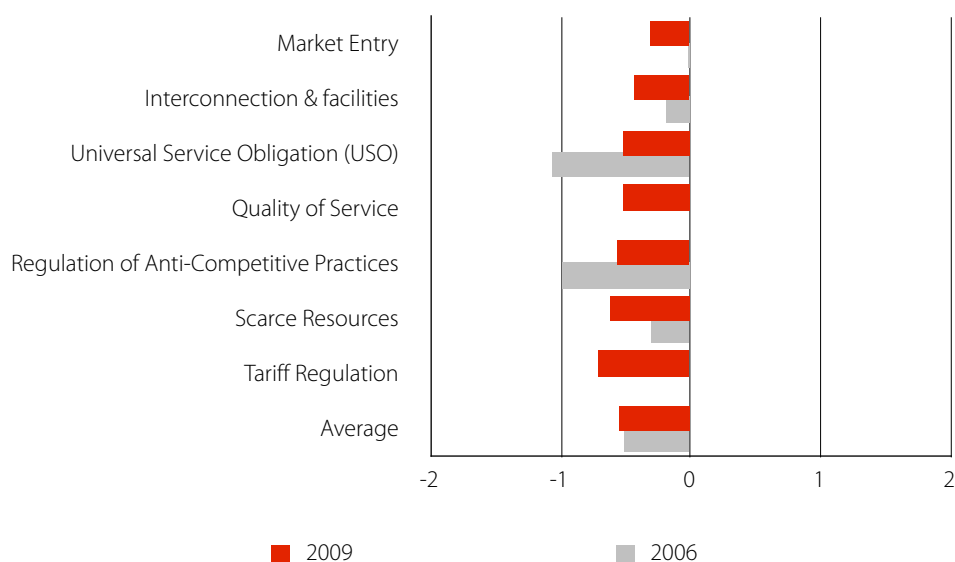


Figure 2: TRE comparison 2006 and 2009.

Source: Survey results.

A comparison of the results obtained here with the results of a survey carried out in 2006 shows a certain deterioration of the telecommunication and ICT regulatory environment in Benin. But this analysis has to be put into perspective for the simple reason that the two surveys were not carried out with the same methodology. In fact, for the TRE of 2009, the methodology was refined in order to obtain more reliable results. This is how a list of essential facts that have marked the sector over the course of the analysed period was drawn up and made available to respondents. The classification of respondents into three categories also led to a bias in the analysis in comparison to 2006.

In the rest of this section we will continue to analyse the results sector by sector.

The Fixed Line Telephone Sector

In Benin, the fixed-line telephone sector remains a public monopoly. Nevertheless, Bénin-Télécom SA, sole operator, is on the way of being privatized. For the first time the monopoly which Bénin-Télécom SA enjoyed will be transferred to a private monopoly.

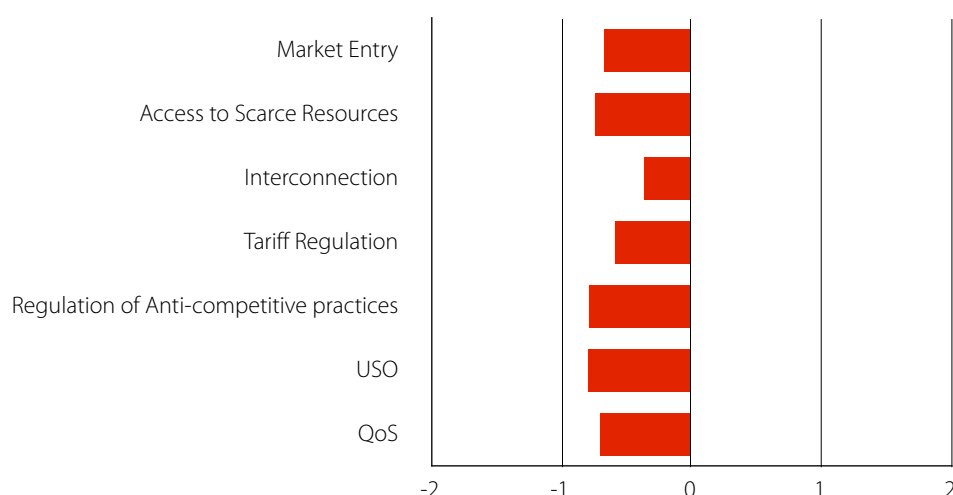


Figure 3: TRE results for fixed-line telephones in Benin.

Source: TRE survey results (2009).

Analysis of the survey results on the evaluation of the regulatory environment of the fixed-line telephone sector reveals that:

- Overall, on the numbering scale from -2 to 2, the role players in the sector in Benin allocated a score of -0,66 to the system of regulating activities in the fixed-line telephone sector in Benin. This result expressed the dissatisfaction of role players with the regulation of fixed-line telephones.
- The role players are a bit more satisfied with the way in which interconnection and rates are regulated in the telephone industry. This relative satisfaction can be explained in one part by the fact that Bénin-Télécom SA, the fixed line sector operator, is in charge of the establishment of the interconnection catalogue and, on the other part, we notice that the call rates on the fixed network, excluding international calls, have dropped noticeably in recent years.
- The role players, through the scores, have shown their great dissatisfaction as far as the regulation of anti-competitive behaviour, the universal service obligation, the management of rare resources and service quality are concerned.

The GSM Mobile Telephone Market

In Benin, the mobile telephone market is the most dynamic of all the telecommunication and ICT sectors. With five active operators, we observe a certain level of competition in this market. Nevertheless, the role players are not too satisfied with the regulatory environment of the sector. This would be linked to the transitional nature given to the authority in charge of the sector. Thus, the role players allocate an overall score of -0.26 to the regulation of the sector. An in-depth analysis of the results shows that:

- The GSM market entry conditions in Benin are satisfactory. In fact, with five operators, it is easy to understand why the role players gave a score of 0.14 to the GSM telephone market entry conditions in Benin.
- The difficulties regularly experienced by the different mobile networks during the transmission of an off-net call explain the score of -0.31 given by the respondents.
- Despite the efforts undertaken by the Autorité Transitoire de Régulation des Postes et Télécommunications in the past two years to force operators to reduce their different rates by keeping in mind real costs, the survey participants think that the regulation of prices and the struggle against anti-competitive practices are the weak links in the regulation of the mobile telephone sector in Benin.
- Service quality and the management of resources are aspects of regulation that are not yet satisfactory in these two criteria as evidenced by the scores allocated by the respondents.

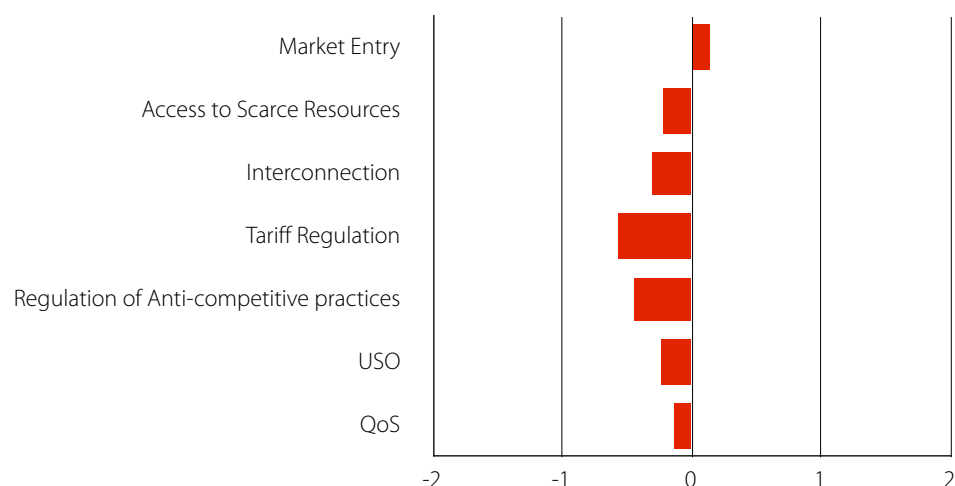


Figure 4: TRE results for mobile telephones in Benin.

Source: TRE survey results (2009).

The Value Added Services Market: The Internet

The results of the survey on the regulatory environment of value added services (notable the Internet) show that the key role players in the sector are not yet satisfied with this regulation. This sector remains completely unorganized. Since it was established, the ATRPT has taken certain measures in view of reorganization works. These measures concern, among others, the suspension of licences mostly of Internet access providers and the census of role players. To this day, the general impression, which comes out of the decisions of the ATRPT, is that it deals more with the telephone sector. The following graph shows the survey results on the value added activities sector, notably the Internet.

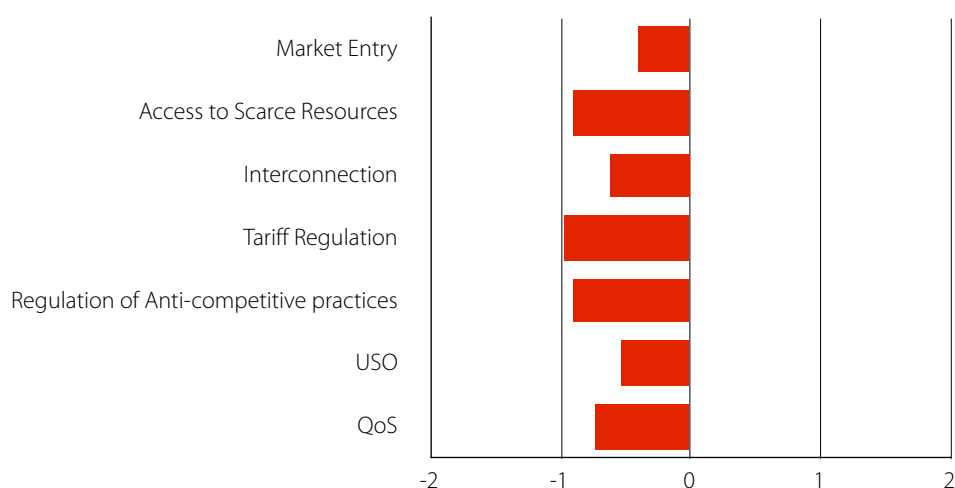


Figure 5: TRE value added services results in Benin.

Source: TRE survey results (2009)

The indicators with the lowest scores here are rates, the management of essential resources, the management of anti-competitive practices and the quality of services provided, in that order.

Recommendations and Conclusion

Since 2006 (benchmark year of the first report on sector performance evaluation in Benin), the telecommunication and ICT sector has experienced some notable changes:

- From four mobile telephone operators, the GSM market offering has changed as today we count five operators on the market with the arrival of the operator Glo Mobile Bénin.
- A temporary regulation authority of the posts, telecommunication and ICT sectors was implemented. However, for better efficiency and effectiveness of the regulation authority, it is urgent that a law be passed to implement a regulation authority of which the member will be appointed by mandate. This will put an end to the transitional nature of the current authority.
- These past few years, communication rates at the different operators present on the mobile network have experienced a drop, whatever the call type. Nevertheless, extra efforts are desired from the different operators, keeping in mind the standard of living of the population and the differences observed by the ATRPT between the rates published and those actually applied to clients. It is becoming urgent that the ATRPT institute measures to get the different operators to drop their rates, keeping their real costs in mind.
- The survey on the evaluation of the telecommunication and ICT regulatory environment shows that significant efforts are expected from the different role players, notably from the State of Benin and the regulator.
- It is imperative that a suitable strategy to give the country an electronic communication and post code is implemented. This code is already drafted and waiting to be submitted to the National Assembly for study and adoption. It has to be noted, finally, that the code is organized into three parts, namely, electronic communication, post and the regulation authority.

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